**Ghana Africa RISING Baseline Evaluation Survey (GARBES)**

**Technical Note on Survey implementation**

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| Summary of the Evaluation Design | |
| *Development Hypotheses* | Sustainable intensification of mixed crop-tree-livestock systems leads to increased whole farm productivity, which in turn leads to development outcomes (improved welfare) such as improved livelihoods (income, assets, capacity, etc.) and better food and nutrition security for those who depend on these systems. It is further hypothesized that a combination of relevant interventions is more likely to increase whole farm productivity than single intervention. Are any spillover effects? |
| *Evaluation Methodology* | Quasi-Randomized Control Trial (QRCT) |
| *Identification of development domains* | The stratification of project sites was based initially on the following variables: farming system, rainfall, elevation (i.e. proxy for temperature), population density and access to markets |
| *Target population* | Farming households living in the selected communities |
| *Sampling methodology* | Stratified two stage random sampling |
| *Sampling frame* | *Ex-novo* sampling frame  IITA lists of beneficiary individuals |
| *Sampling strategy: First stage* | Random selection of control communities (n=25)  Selection of the 25 intervention communities already conducted at the beginning of the project  Total number of community=50 |
| *Sampling strategy: Second stage* | Random selection of households within each community |
| *Sample* | 1,294 households |

*GARBES Survey instruments*

Household survey tool

The HQ has been specifically designed to collect information on AR’s core topics, which are food security, poverty, agricultural production and productivity as well as nutritional status. Given the high amount of information to be gathered, the survey instrument is divided into two parts in order to split the interview into two visits to the same household. As Table 7 summarizes, the HQ overall covers 18 sections, of which 10 sections are included in the first part of the interview and 8 in the second part of the interview. In particular, the HQ is composed of 18 different modules (going from module A to module R), as listed below:

* Module A: Household Identification and Household Re-contact
* Module B: Household Member Roster
* Module C: Women Anthropometry
* Module D: Child Anthropometry
* Module E: Agricultural Land
* Module F: Crop Inputs (Soil Conservation)
* Module G: Crop Production
* Module H: Crop Sales
* Module I: Crop Storage
* Module J: Livestock
* Module K: Agriculture-related Problems and Coping Strategies
* Module L: Other Income
* Module M: Credit
* Module N: Housing and Assets
* Module O: Subjective Welfare and Food Security
* Module P: Food Consumption over the Past Week
* Module Q: Non-Food Expenditures
* Module R: Recent Shocks to Household Welfare

A critical aspect influencing non-response is the introduction of the survey to the household. Hence, Module A carefully present the aim of the data collection to his/her informant and gathers his/her consent to participating to the survey. Also, GPS coordinates of the location of the dwelling unit are recorded in order to track households over time and space. Module B gathers information at the individual level on each member of the household. Such information include the demographic characteristics of individuals (e.g. age, sex, education). In particular, age is often difficult to measure with precision and accuracy in illiterate population. Following FAO (2008), Module B endorses a calendar of local events recalling major events in these areas of Ghana. Further, the module broadly focuses on the employment status of individuals to assess their involvement with agriculture either through primary or secondary activity.

To assess the nutritional status of individuals, Module C and D are devoted to anthropometry. In particular, the former collects body measurement of children between 0 to 59 months, whereas the latter carries out anthropometric measurements of women who are of reproductive age (i.e. 15 to 49 years) and not pregnant or breastfeeding. GARBES includes anthropometry in order to evaluate whether the increase in agricultural production also leads to an improvement of the nutritional status of the most vulnerable individuals within the household, namely women and children.

A great emphasis is due to agricultural production and livestock rearing through six modules respectively dealing with agricultural land, crop inputs, agricultural production (crop production, crop inputs, crop sales, crop storage), livestock ownership and feeding. In particular, Module E seeks to establish whether the household has engaged itself with farming or livestock activities with reference to the last cropping season (April-December 2013) or the previous cropping season (April-December 2012). Information are then gathered on the parcels of land used by the household with reference to only one of these two seasons, whether owned by the household or not. A specific feature of GARBES regards the comparison of self-reported area of cultivated parcel with objective measurement through GPS of the same parcel of land on a sub-sample. Thus, the survey instrument foresees GPS measurement of one plot not farther than 10 minutes away from the dwelling unit for each household belonging to a subsample of 250 households. Module E also broadly investigates the land tenure system as well as the characteristics of parcels in terms of soil, irrigation and use.

The unit of analysis for Modules F and G shifts from parcel to plot in order to gain more accuracy in regard to agricultural production. Thus, for each parcel the instrument gathers information at the plot level assuming that a parcel includes more than one plot. In order to assess the adoption of sustainable intensified agricultural activities, Section F focuses on practices related to soil conservation, such as crop rotation, fallowing, method for ploughing, application of manure to the soil, and use of fertilizers (e.g. organic fertilizer). Further, GARBES investigates whether plots suffer from soil erosion as well as which measures (e.g. stone terrace, planting trees) are taken on to address the issue.

Module G looks in depth into the production of crops at the plot level. Hence, it asks information about different crops that were grown on each plot as well as the different varieties of the crops. In case of intercropping (i.e. multiple crops on the same plot), a ‘bean game’ has been included in the survey instrument to illustrate the distribution of crops on the same plot. That is, after having laid 50 beans on the ground, the informant is asked to partition the beans proportional to the land area that each crop is planted on, on the referenced plot. Then, by multiplying by two the number of beans for each crop, the tool records the approximate percentage of each crop on the plot. Further, agricultural production is assessed not only through the output of farming, but also in terms of inputs required. Hence, three sub-sections of Module G look respectively at costs for inputs, seeds and labor.

After having investigated agricultural production, the survey instrument records information on crop sales both in terms of quantity as well as estimated value. To increase accuracy of how much agricultural production was sold into the market, the instrument also investigates the quantity of production that has been devoted to other uses, such as harvested, given as gifts, dedicated to own consumption, and saved as seed.

Livestock ownership is investigated in Section J, which is about taking a count of all the livestock owned by the household now and over the past 12 months. The unit of the analysis in this section is intuitively the animal in order to track changes in the stock as well as the potential reasons behind that change. Particular care is devoted to gender issue by questioning not only management systems for livestock, but also who in the household is responsible for attaining them. The second sub-module of Section J groups animals into five categories (i.e. large ruminants, equines, small ruminants, chicken and poultry and pigs) to investigate feeding practices.

The second part of the interview starts with questioning the interaction between the informant and the agricultural extension agent and Africa RISING. Module K is indeed dedicate to assess the source as well as the flow of information regarding the delivery of public agricultural services in general and Africa RISING in particular. Further, as income is not easily declared by the informant, the survey instrument foresees a specific module on “other income” in order to take into account other source of revenues beside agriculture. Hence, Section L investigates whether the household has gain other income from remittances, household non-farm enterprise, and other non-agricultural activity, such as sale of charcoal, or grain milling. Moreover, Section M on credit questions whether anyone in the household has applied for a loan or has received any crop inputs/agricultural equipment on credit.

Monetary indicators of welfare are difficult to measure directly as the variable is often subjected to measurement error. For instance, informants may be reluctant to provide reliable and detailed information on their wealth for fear of tax inspection, among other reasons. Therefore, the survey instrument has endorsed Section N to construct an indicator of wealth through assets’ ownership both in terms of household and farm asset type. Also, Section N asks for the distance of the dwelling unit to main services, such as primary and secondary schools, motorable road and district capital.

The attention between subjective and objective measurement is to be found also in regard to food security and poverty. Thus, Section O on Subjective Welfare and Food Security draws on the Household Food Insecurity Access Scale (HFIAS), developed by USAID (2007), to investigate whether the household has experienced any food shortage during the year, as well as any unequal intra-household allocation of food intake. Instead, Section P is devoted to the traditional method of collecting data on food consumption that is drawing from the Living Standards Measurement Surveys (LSMS). The LSMS have indeed established a mainstream methodology to assess food security and poverty in a given population through the quantitative measurement of food consumption. The time reference for the recall period on food items consumed by the household is the past seven days. Food expenditures are complemented by non-food expenditures in Section Q. Finally, the survey instrument ends by questioning the informant on the three most severe shocks on household welfare over the past five years as well as those resilient strategies put in place to overcome negative events.

Community survey tool

The main objective of administering the Community Questionnaire is to collect baseline community data in the 50 communities in the three northern regions (Northern Region, Upper East Region, Upper West Region) in Ghana for the purpose of facilitating M&E of AR-Ghana project. Community-level data complement data from the household survey to example the role of land-scape level socio-cultural as well as economic environment. Community data are collected through focus group with local leaders and knowledgeable community members as well as market surveys. Through focus group, data were collected on Access to basic services (Module CC), Agricultural labor, Extension Services and Agricultural problems (Module CD), Land Use (Module CE), Demographics, Land (Section CF), and Water access, shocks, and food consumption (Module CG). Prices of major food items and metric conversion data (Module CH) were collected through visits to local markets and vendors.

The Community Questionnaire has been designed to be administered to local leaders and knowledgeable members of the community in a group meeting (i.e. focus group). Among those to be considered for inclusion in the group of informants for the community questionnaire are group village and village headmen, counselors to the headmen, religious leaders, school teachers, health workers, agricultural field assistants, and business leaders. Instructions provided to gather information in the Community Questionnaire foresee a minimum of five informants and maximum of eight informants, including at least one woman. Thus, the group should be kept as diverse as possible to capture different views and needs within the community. Module CB aims at recording information that will identify members of the group, their roles and responsibility within the community as well as the geographical location of each community. In particular, GPS coordinates for the community are thought to be collected from the center of the village with proper and prior consultation from the participants or village chief.

Section CC seeks to establish the accessibility of basic services for the community as well as the satisfaction of users of such services. For services that are not available in the community, participants are requested to discuss how long it takes to get to the facility using the usual means of transport. In particular, the usual means of transport refers to that is used by the majority in the community, whereas the distance of the service is assessed from the center of the community. Whereas Section CC asks about access to basic services such as schools, markets and livestock services and post office, Section CD specifically focuses on agriculture. In particular, the module investigates whether agricultural extension services are provided for specific agricultural activity, such as irrigation, planting, harvest, application of fertilizers, among others. To minimize the bias, if an agricultural extension officer is a member of the group of the informant, the survey instrument instructs to ask him/her to leave temporarily the group. Further, the Module CD also attempts at gathering information on the main agricultural problems affecting households in the community as well as the coping strategies identified by the community to overcome such problems. Also, the Section devotes space and time to assess any gender bias in child agricultural labor and drop out from schooling. Greater attention to gender inequality is to be found in Section CE on land use. Indeed, the module not only asks for the allocation of total as well as cultivable land to different uses, but also deeply investigates practices of land inheritance within the community.

Demographic characteristics of the population living in the selected area of the study are recorded in Section CF. A specific set of questions is devoted to assess migration flows, both inflow and outflow, at the community level. Moreover, Section CG investigates sources of access to water and what percentage of the population relies on each of them either for private use or not. Also, it asks information for the occurrence of shocks in the last cropping season (i.e. April-December 2013) as well as how many households and animals and crops were affected by the negative event. After having recorded the main crops grown in the community, the focus groups end.

***Sampling design for Q-RCTs***

The first step of the sampling strategy involved the *ex-novo* listing of all farming households in selected communities to construct an updated and complete sampling frame. As a result, the listing exercise identified 6,929 farming households (Table 4, Column A). Next, AR’s beneficiary households were removed from the sampling frame for action communities to produce a household list from which non-beneficiary households could be randomly sampled (stage 6 of the evaluation design). IITA kindly provided two lists, namely a list of AR beneficiary *individuals* who have received interventions at the initial stage of the program (i.e. during the cropping season of April-December 2013), and a longer list of beneficiary *individuals* which included both 2013 beneficiary individuals and individuals interested in joining the program in 2014. Another specific and crucial feature of the latter list is the provision of a variable to tag individuals at the household level.

At the inception of the program (first semester 2012), IITA's research activities were focused on crop production only and IITA identified 30 farmers in each of the 25 intervention sites. In 2013, IITA has opened the registration for AR to all farmers who are interested in joining the program. Such list was shared among all partners within the institutional framework of AR in Ghana for two specific reasons. First, these farmers will be subjected to different treatments by different partners (e.g. livestock intervention by one partner and intervention related to crop production by another partner). Second, the list will not be re-opened until 2016.

For the cropping season April-December 2013, the total number of beneficiary individuals was 688 (Table 4, Column B). According to research partners in Tamale, this number was determined by the availability of seeds. At the regional level, the distribution of beneficiary individuals shows a higher number in Northern (277) and Upper West (275) regions and a lower number in Upper East region (136). This distribution is explained by the fact that Upper East region has lower number of intervention communities compared to the two other regions. Yet, when looking at the number of individual farmers willing to join the program in 2014, the Upper East received 411 registrations, whereas Northern and Upper West received 339 and 411 farmers, respectively. Overall, beneficiary farmers interested in joining the program in 2014 were 1,227. Hence, over the two years, total beneficiary individual farmers for AR in the 25 intervention communities sum up to 1,915.

Given that the household is the primary unit of analysis of AR and the evaluation design, Table 1.1.4 (Column C) also presents household level summary. The total number of *intervention households* in 2013 was 462, whereas in 2014 the total number was 720. In 2014, there were a total of 551 *new interested households* that did not benefit from AR activities in 2013. At a closer scrutiny, therefore, the sum of AR intervention households is 1, 010 over the two years period.

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| Table 1.1.4:Ex-Ante Sampling Frame and List of Intervention Households, GARBES 2014 | | | | | | | | |
|  | **Sampling Frame**  (Household level)  IFPRI  (A) | **List of Beneficiaries**  (Individual level)  IITA  (B) | | | **List of Beneficiaries**  (Household level)  IITA  (C)  (C1) (C2) (C3) | | | |
| **Region** | **# Farming**  **HHs** | **#**  **Treated**  (2013) | **#**  **Interested** (2014) | **#**  **Total** | **#**  **Treated HHs** (2013) | **#**  **HHs**  (2014) | **#**  **New HHs**  (2014) | **Total HHs**  **(C1+C3)** |
| *Northern* | 1,904 | 277 | 339 | 616 | 191 | 186 | 162 | 348 |
| *Upper West* | 3,329 | 275 | 477 | 752 | 161 | 294 | 180 | 342 |
| *Upper East* | 1,623 | 136 | 411 | 547 | 110 | 240 | 209 | 320 |
| **Total** | **6,856** | **688** | **1227** | **1915** | **462** | **720** | **551** | **1010** |

*Note:* “HHs” stands for households.

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| Table 1.1.5: Ex-ante sampling strategy for GARBES (n=1,312) | | | |
| Control  households | Non-Beneficiary households | AR intervention households in 2013 | AR intervention households in 2014 |
| 500 | 200 | 462 | 150 |

To guarantee the representativeness of the sample, a necessary condition to inform decision-making on scaling up/out, the population of interested was divided into four groups, namely:

1. Households in control communities;
2. Non-beneficiary households in AR intervention communities;
3. Africa RISING beneficiary households (2013) in AR intervention communities;
4. Africa RISING interested households (2014) in AR intervention communities;

A stratified random sample was the sampling strategy employed with development domain at the district level taken as strata. The second stage of the sampling design foresaw a random sampling of households within each community. In particular, a constant number of control households (n=20) was randomly selected in each of the 25 control communities for a total of 500 control households. In regard to the 25 intervention communities, the sampling strategy randomly selected a constant number of households (n=8) not directly benefitting from AR intervention but living in the AR community. Further, a census of all AR intervention households benefitting from the program in 2013 was to be conducted on 462 intervention households. Furthermore, a constant number of 6 households interested in joining the program in 2014 was randomly selected in each AR community.[[1]](#footnote-1) Table 1.1.5 shows the ex-ante sampling strategy as well as the total sample size for GARBES (control households=500, non-beneficiary households=200, AR beneficiary in 2013=462, interested households in 2014=150).

GARBES Planning, Implementation, and Challenges

In order to collect high quality baseline data both at the household and community level in selected areas of study, the M&E Team at IFPRI has divulgated over four months a Term of References to open a competition among interested survey firms. After careful assessment of the capability of each interested survey firm, the IFPRI M&E Team has contracted Pan African Field Services Limited (Panafields) for the implementation of the study.[[2]](#footnote-2) In particular, since the contracting of the survey firm, the execution of GARBES at the field level has been spanned over the timeline summarized in Table 1.

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| **Table 1:** Timeline of activities for the implementation of GARBES, 2014 | | |
| **Activity** | **Start date** | **End date** |
| ToR for contracting the survey firm | December, 2013 | April, 2014 |
| Contracting of Panafields | April, 2014 | November, 2014 |
| Households Listing | 8th April, 2014 | 20th April, 2014 |
| Training, Piloting and Programming | 15th April, 2014 | 8th May, 2014 |
| Data collection | 12th May, 2014 | 3rd July, 2014 |

***Household listing***

In the communities selected for the study, a sampling frame (i.e. the universe of reference) was constructed *ex-novo* to list the target population, namely all farming households living in the 50 communities selected for the study. In particular, a farming household has been defined as a household engaged in agriculture either through livestock and/or crops production, irrespective of land ownership (i.e. whether the household owns land or not). Further, a household refers to one, or more people, who share meals and had lived under the same dwelling for at least the past three months.

In April 2014, GARBES had systematically collected basic information on socio-economic characteristics at the household level in both counterfactual and intervention sites in order to list all farming households living in such areas, using a structured Listing Questionnaire (LX) (Appendix 1), which consisted of 16 questions. In particular, the first three questions refers respectively to coding Region, District and Community, whereas Questions 4 and 5 identify the enumerator and the supervisor. Question 6 asks for the date of the interview. To identify the population of interest, question 8 was designed as a FILTER question, which is if the household was not engaged in agriculture, the LX would end. Instead, if the Household engages in agriculture, Questions 9, 10, 11, 12, 13 ask respectively the name of the Head of the Household, his/her age (in years), his/her gender (male/female), the name of his/her spouse, as well as the age of the spouse of the Household Head. Further, questions 14, 15, 16 ask respectively for the total number of people living in the household, whether the household owns land (yes/no) and how many minutes by walking it takes to go from the household to the closest plot. Moreover, due to the conciseness of the LX, it was assumed that around 50-60 households would had been interviewed per day.

Survey staff directly involved into the listing were the Assistant Project Director (APD), three Field Managers (FMs) (one per region), three Data Entry Clerks (also one per region), and four survey teams, each comprising one supervisor and four enumerators (Table 2). Since several field activities were undertaken simultaneously (e.g. listing and training), enumerators and supervisors contracted for listing were not part of the roaster of trainees. Due to the higher amount of intervention sites in the Northern Region, two survey teams were simultaneously working in such areas, whereas the remaining two teams were respectively surveying farming households in Upper East and Upper West regions. The GARBES’s Survey Resident (SR) provided overall guidance and supervisor.

In terms of logistic for data collection, each survey team was based at its regional headquarter (i.e. WA in Upper West, Tamale in Northern region, and Bolgatanga in Upper East). In every region, the Field Manager was responsible for contacting the Regional and District Officers to obtain Government Authorization at the local level. Also, at this stage, FMs were in charge of contacting the Extension Officers in order to gather existing lists of all farming households in the communities under scrutiny. Prior to enter the community, the Field Manager was also in charge of obtaining consensus from village leaders. Upon such consensus, the FM guided the team into the community to list all farming households living in such community. On a daily basis, the Data Entry Clerk inputted data into an excel template in readiness for sampling. In order to minimize measurement error stemming from potential wrong inputting of data, a specifically designed template was made mandatory to the data entry clerks. Three were the main challenges identified during the listing exercise. First, GARBES encountered some difficulties in matching the Extension Officers with the resulting list because the former lists individual farmers whereas GARBES has listed farming households. Second, EO were not always available upon field visits and EO’s lists not always updated and compiled. Third, given the similarity of names for some communities (e.g. Kpallung and Kpelung) extra care has been devoted to verify accuracy of households listed.

The listing stage resulted in a sampling frame of 6,929 farming households living in the selected communities. In particular, 1,904 farming households were listed in the Northern Region, 3,329 in the Upper West Region and 1,696 in the Upper East Region. Non-farming households were few in all three regions, as expected from the identification of development domains. Alongside the sampling frame, the listing exercise highlighted the need for Extension Officers to accurately keep tracks of agricultural households as few lists were actually available, updated and reliable. The choice of obtaining a complete and accurate *ex-novo* sampling frame, has been, therefore, necessary because: “In the absence of a credible and well-thought evaluation approach as well as target households and communities that are not representative of the population they are drawn from, estimates of the effect of interventions on whole farm productivity and development outcomes will be inaccurate and imprecise and, therefore, cannot be extrapolated” (IFPRI, 2014).

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| **Table 2:** Survey Staff for Listing, GARBES 2014 | | | | | |
| Region | #  Field Manager | #  Supervisor | #  Data entry clerk | # Enumerators | Total |
| Northern | 1 | 2 | 1 | 8 | 12 |
| Upper East | 1 | 1 | 1 | 4 | 7 |
| Upper West | 1 | 1 | 1 | 4 | 7 |
| Total | 3 | 4 | 3 | 16 | 26 |

***Recruitment of survey staff***

The completion of GARBES has requested to contract experienced survey enumerators at the local level, especially in light of multiple local language spoken in the areas of interest. To this aim, Panafields has posted online a specific advert for the job opening in order to specifically attract computer literate enumerators.[[3]](#footnote-3) In addition to computer literacy, further criteria for selecting applicants were to hold a Bachelor Degree in Agricultural Economics or related, fluency in English and at least one local language spoken in the relevant communities and previous experience in the primary data collection. Moreover, the advertisement has been divulgated among relevant institutions in the specific districts where selected communities are located. After submitting their application and Curriculum Vitae, selected candidates were invited at a central location in each region for a written aptitude test. Only applicants scoring the highest points were invited for an oral interview to further assess their previous field experience, languages and relational skills. Overall, 36 candidates (12 for each region) were selected to attend the training.[[4]](#footnote-4)

***Training of survey staff, Programming and Piloting***

GARBES training took place at the Institute of Local Government Studies (ILGS) located in Tamale from 15th April to 8th May. The three weeks of training respectively covered three modules, namely Paper-Based Training (PAPI), Computer-Based Training (CAPI) and Piloting. Dr. Asamoah Larbi, IITA Country Representative, launched the training session thanks to a warming welcoming speech. The Training Module on PAPI started on the 15th April and aimed at providing enumerators with a detailed knowledge of the Household Survey Instrument. Hence, each section and question was discussed throughout the week. Teaching and training materials included a projector, several printed copies of the Household Survey Instrument, mock interviews among enumerators to test the understanding of questions, flip charts for providing practical examples. Involvements of enumerators was highly encouraged and welcomed.

Given the complexity of the survey instruments, the methodology identified for collecting GARBES is Computer Assisted Personal Interviewing (CAPI). Indeed, CAPI methodology allows a greater control over non-sampling measurement error through the inclusion of data validation into the scripting of the instrument. Also, it dramatically reduces the time length between data collection and data analysis and minimizes coding errors.[[5]](#footnote-5) Hence, the CAPI programming was conducted through SURVEY CTO, which is based on Open Data Kit (ODK) open source platform, and which is structured into three components, as follows[[6]](#footnote-6): the *SurveyCTO Server*, which serves as a central clearing-house for both blank and filled-in survey forms. It also provides a web interface to assist you in designing and managing your surveys; the [*SurveyCTO Collect*](https://play.google.com/store/apps/details?id=com.surveycto.collect.android), which is an Android app that data-collectors use to fill out forms on their Android phones or tablets. After data has been collected, it is uploaded to the *SurveyCTO* Server; the *SurveyCTO* Client, which is a desktop application that you can use to download, transport, export, and process your data.

The Survey CTO collect was installed on Samsumg Galaxy Tablets, which were the main measurement tools employed during data collection. Further, the programming of the survey instruments into *SurveyCTO* was carried out purposely during the training of enumerators and piloting of the survey instruments in order to allow room for incorporating feedbacks from the field. The customization of the scripting to the local context as well as the identification of ad-hoc validity checks (e.g. age range, unit of measurements) took place simultaneously during the three weeks of training. In particular, the second week of training was specifically dedicated to instruct enumerators on how to conduct the CAPI interviews, which also involved specific session of practical exercise on the side of enumerators.

A specific day during both the first and second week was dedicated to training enumerators in gathering anthropometric data. To this aim, three representatives of the Ghana Nutritional Bureau (GNB) spent the day in teaching the enumerators how to use anthropometric scales while controlling for possible measurement error and to prevent possible source of misbehavior during anthropometric, especially in regard to children. Also, the two sessions foresaw a practical training during which each and every enumerator had to perform anthropometry on humans (both children and women in reproductive ages). The GNB assessment of the performance of enumerators in conducting measurement of the body has fully entered the final evaluation of trainees. Furthermore, to increase accuracy of data, anthropometric training was conducted on the same measurement scales employed during data collection. That is, SECA scales for weighting women in reproductive age and SALTER scale for children aged 0-59; SECA height boards and MUAC tapes for upper arm circumference.

The piloting of the survey instrument took place on the third week of training. Table 3 lists both the dates as well as communities where piloting took place. Communities for piloting were carefully chosen so as to avoid any overlapping with communities selected for data collection as well as geographical proximity. After each day spent into the community piloting the survey instruments, trainees spent the following day reporting and discussing each and every doubt raised during the interview as well as any challenge faced. Moreover, the last day of piloting was conducted in each regional capital in order to allow survey teams to pilot the survey instruments in their own local dialect. At the end of the training, the overall best performer and most experienced enumerator was elevated to the position of QA officer for Northern region, 6 enumerators who performed best were promoted to Supervisory level, and 24 enumerators were selected for proceeding to data collection. Hence, 5 trainees were dropped due to poor performance. Selection of enumerators, supervisors and QA was done according to merit assessed through overall performance during various written and oral tests, understanding of the background of the study, mastering of the CAPI instrument and evaluations done by GNB in regard to anthropometric measurement.

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| **Table 3:** Selected communities for Piloting, GARBES 2014 | | |
| **Date** | **Team** | **Community** |
| 22nd April | Northern | Chanzeni |
|  | Upper West | Wamale |
|  | Upper East | Wamale |
| 25th April | Northern | Kpawumo |
|  | Upper West | Kanvilli |
|  | Upper East | Tunaayili |
| 5th May | Northern | Fuo |
|  | Upper West | Fuo |
|  | Upper East | Kanvili Tunayili |
| 7th May | Northern | Nyanpkala |
|  | Upper West | Nyanpkala |
|  | Upper East | Nangbagu Yakura |
| 12th May | Northern | Tamale |
|  | Upper West | Wa |
|  | Upper East | Bolga |

Survey teams and organization of fieldwork

In each region, the survey personnel involved one Field Manager, one Quality Assurance Member, and two survey teams. In turn, each survey team is respectively composed of one supervisor and four enumerators. Table 4 specifies the roles and task of each survey member.

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| **Table 4:** Survey Personnel and Tasks | |
| **Staff** | **Tasks** |
| **Enumerators** | To visit only the selected households to conduct interviews using tablet  To collect household members’ anthropometric data  To collect land size measurements for a specified subset of survey households as detailed by IFPRI guidelines. Land area measurement will be collected from the parcel/field that is the closest to homestead. Land area measurement will be collected at the end of the first half of the interview using GPS device. |
| **Supervisors** | To obtain assistance of the village guide/Extension Officer to take Enumerators around the village and familiarize them with the community and surroundings.  To get village head approval/consent prior to take off in each community  To review all completed interviews by Enumerators, and report any discrepancy to the Field Manager  To ensure that all anthropometric data are collected.  To conduct community survey interviews  To ensure the following: 10% accompaniment of each enumerator on field 20% Back checks of each interviewers job done  To fill, collate and submit the Project Update form to the Field Manager on a daily basis  To synchronize all completed interviews from the teams’ tablets to the IFPRI server daily |
| **Field Managers** | Liaise with and guide supervisors/enumerators on their job  To assign tasks and localities/communities to the teams in his region  To act on needs and reports received from supervisors/enumerators including back-checking of their jobs.  To visit supervisors/enumerators on the field, phone calling and tracking their progress to ensure maximum project management within their districts  Additional back checking especially when issues arise  To conduct field audit on the completed interviews  Send bi-weekly update of all teams in his region to the Project Director in the specified format  To be available for mid-fieldwork progress meetings with project director and client on the agreed date |
| **Quality Assurance Personnel** | To check a minimum of 10% of randomly selected interviews conducted by each Enumerator  To correct errors and/or suggests corrections to Supervisors/Enumerators.  To reject 100% interviews of enumerators if fraudulent.  To provide a bi-weekly report to the Project Director in the specified format  To fill, collate and submit the QA form to the Project Director on a weekly basis |
| **Project Director** | Holds weekly review meetings with Field Managers on the project  Directs, coordinates and decides on all issues and reports from the field  Update the client on weekly basis  To be available for mid fieldwork meeting in Tamale (i.e. after 10 days)  Provides overall guidance for Project Management  Resolves conflicts, manage challenges/fundamental issues about design.  Full responsibility for all project deliverables including report |

1. It is worth underlining that beneficiary household in 2013 refers to any household with at least a member benefitting in the intervention program in the year 2013 irrespective of whether other members of the households registered for the 2014 cropping season. A beneficiary household in 2014 refer to any household with at least a member who claimed to be interested in benefitting from intervention program in the year 2014 irrespective of whether other members of the household will join the program later (i.e. not earlier than 2014). [↑](#footnote-ref-1)
2. For further information on the survey firm, please see http://www.panafields.com/ [↑](#footnote-ref-2)
3. The advertisement was posted on http://www.jobberman.com [↑](#footnote-ref-3)
4. Specific care was devoted to assure enumerators were not belonging to the communities falling under the area of study. [↑](#footnote-ref-4)
5. For further information on CAPI advantages, see for instance http://web.worldbank.org/WBSITE/EXTERNAL/EXTDEC/EXTRESEARCH/EXTPROGRAMS/EXTCOMPTOOLS/0,,contentMDK:23426734~pagePK:64168182~piPK:64168060~theSitePK:8213597,00.html [↑](#footnote-ref-5)
6. For further information, please see http://www.surveycto.com/index.html [↑](#footnote-ref-6)